Council of Economic Advisors

Commonwealth of Kentucky
John Y. Brown, Jr., Governor

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THE KENTUCKY COUNCIL OF ECONOMIC ADVISORS

The Kentucky Council of Economic Advisors was created by Executive Order in December 1970, and was confirmed by the legislature in Chapter 147B, Kentucky Revised Statutes in the 1972 regular session. Its functions are as follows:

1. To collect, compile, and interpret economic data concerning the economy of the Commonwealth (including employment, unemployment, wages, personal income, profits and other socioeconomic information).
2. To make economic projections and recommendations.
3. To report to the Governor at the beginning of each fiscal year and calendar year on the state of the economy of the Commonwealth.
4. To undertake such other related tasks as may be requested by Governor.

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The production of this report is one of the continuing research activities of the Kentucky Council of Economic Advisors (KCEA). The Council and its staff also publish the quarterly *Kentucky Economy: Review & Perspective* and various occasional reports. The occasional reports usually appear in one of two continuing series, the *Policy Paper Series* or *Studies in Applied Economics*. Also included in the Council's research program are the development and maintenance of the Kentucky Economic Information System (KEIS). The KEIS is a computerized data base system primarily containing several thousand economic data series pertaining to Kentucky and its administrative and geographical subdivisions.

The KCEA publishes each of its reports as a contribution to the competent professional treatment of the subject. Its studies are undertaken in an objective fashion and, accordingly, are worthy of public consideration. The interpretations and conclusions in such publications are those of the authors and do not necessarily reflect the views of the Council, its members, or any other organization or person.

The entire KCEA staff participated in preparing this report. Presently on the staff are: Margaret O. Adams, Dee-Fu Chen, Mark Lunn, Yee Ling Mui, Frances E. Ross, Roy A. Sigafus, Dorisa A. Slaughter, and Elsie M. Youmans. Assistance was received also from Professor Larry D. Jones, Department of Agricultural Economics, University of Kentucky. Sincere thanks are extended to all for their efforts and cooperation during the year. Special thanks are also extended to the Center for Business Development for use of their computer graphics equipment.

Don M. Soule
Executive Director (Acting)
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PREFACE

Perhaps the most important economic concern for Kentuckians in 1984 and the years ahead is the state's potential for expanding and fully using its productive capacity. A high rate of economic growth and full use of labor and other resources are needed to bring a higher standard of living to Kentucky.

Kentucky's growth potential seemed well assured during approximately the first two-thirds of the 1970 decade. The state's per capita income not only increased but moved closer to the national average, and its labor force expanded to fill opportunities created in various industrial sectors and especially in the manufacturing sector. But the Kentucky economy began to lag, beginning in the late 1970s, and was seriously affected by the national recessions of 1980 and 1981. Although recovery commenced nationally in 1982, there is evidence that even by late 1983, some parts of the Kentucky economy were lagging behind the national recovery. In any event, the optimism based upon the rapid growth in Kentucky that characterized much of the seventies has been dampened somewhat by continued high unemployment and by several rounds of state government budget cutbacks in the early 1980s.

It is naively simplistic to assume that the inability of the state to maintain the growth rate of the early 1970s is based on any single factor or to assume that a solution rests in altering any one condition. To a great extent the economic well-being of the Commonwealth in the next several years depends upon such national developments as levels of interest rates, rates of inflation, federal energy policies, and more generally, the rate at which the national economic recovery continues. Yet in the long run, economic improvement in Kentucky, both absolutely and relative to the national average, requires the existence in Kentucky of the facilities, attitudes, laws, etc., that are found to be conducive to growth and development of productive activity. This, in turn, requires a willingness to identify areas of weakness as well as strength in the state economy; to examine and introduce changes in education, finance, and industry; and to facilitate the flow of resources into their most productive uses. To these ends, the state has a number of assets—an abundant supply of coal and of fresh water, a "sunbelt" location, and a state government sympathetic to business needs.

Successful achievement of the state's economic objectives requires knowledge and information of existing economic conditions and relationships. Equally important is the need for continued analysis to identify

quickly and accurately the important changes that are underway in the Kentucky and national economies. To support that activity, the staff of the KCEA continues to maintain and expand the Kentucky Economic Information System, a public resource of data on the Kentucky state and area economies. This year's *KCEA Annual Report* uses the System as a source for describing developments in the Kentucky economy over the period 1970-82. It examines income and other economic indicators in each of the state's major industries over time and as they compare with national averages.

Charles W. Hultman
Chairman
Kentucky Council of
Economic Advisors

A DESCRIPTIVE ANALYSIS OF THE KENTUCKY ECONOMY, 1970-82

Don M. Soule and Frances E. Ross*

This report uses annual data to compare the Kentucky and national economies, generally over the 13-year period 1970-82, according to important types of available economic data. Income data are used instead of employment data in analysis of most industrial sectors. The choice to use income data reflects the view that income is more representative of economic changes. Income data are affected by differences in wage rates and number of hours worked per week—dimensions that are not shown by number of workers employed.

This report is presented in 13 parts, with each part identified by a numbered heading. Within each part, the textual analysis continues without interruption and is followed by the related tables and charts. A distinctive feature of this year's report is the use of computer-produced plots and charts to highlight the more important aspects of the economic relationships and changes described in the text and tables. Except where otherwise noted, the primary source for all data is the Bureau of Economic Analysis of the U.S. Department of Commerce. The Kentucky Economic Information System (KEIS) is the secondary source for all of the data analyzed in this report.

**Don M. Soule is (Acting) Executive Director of the KCEA and Professor of Economics, University of Kentucky. Frances E. Ross is a Data Analyst on the staff of the KCEA.*

1. Per Capita Personal Income

Per capita personal income is the most useful available measure for comparing economic conditions among states and for observing changes in a particular state over several years. Because Gross State Product—the state equivalent of Gross National Product—is not computed for Kentucky and many other states, total personal income is the largest and most encompassing measure of a state's total economic performance. The adjustment to "per capita" personal income (total personal income divided by population) eases the tasks of comparing Kentucky with states that differ in population size and of evaluating Kentucky's performance over a period of years during which its population has changed. Expressing the Kentucky amounts as percentages of the national averages allows easy recognition of a change in Kentucky's performance relative to that of the nation and also adjusts for the exaggerating effects of inflation on growth rates in income series.

Table 1 shows three series for per capita personal income for 1940, 1950, 1960, and 1970-82: (a) Kentucky as a percentage of the national average, (b) the twelve-state Southeastern group (which includes Kentucky) as a percentage of the national average, and (c) Kentucky as a percentage of the Southeastern average. Two of these series—Kentucky and the Southeastern average as percentages of the national average—are plotted according to two arrangements of years. In Figure 1-A, the years are every tenth year beginning with 1940 and ending with 1980 while in Figure 1-B plots are for each year in the period 1970-82.

Per capita personal income, in Kentucky individually and in the Southeastern states as a group, improved relative to the national average over the period 1940 to about 1976-79. Kentucky's income performance improved relative to that of the nation by 13 percentage points between 1940 and 1950, by 6 points between 1950 and 1960, and by 6 points between 1960 and 1970, but by less than 2 points between 1970 and 1980. There was a definite slowing and even a slight decline in Kentucky's relative income performance during the second half of the 1970 decade. This does not mean that dollars of income have declined in Kentucky since about 1977, but means merely that income grew in Kentucky at less than the national rate. Because the 1980-82 recessionary period affected both Kentucky and the nation, Kentucky's decline relative to the nation during the late 1970s and early 1980s possibly indicates a slowing of economic progress in Kentucky.

The pattern of average income growth in the twelve Southeastern states was generally similar to that of Kentucky during the period since 1940, with both income series showing improvement relative to the national

average. Kentucky's income performance relative to that of the Southeastern states is shown in column 3 of Table 1, wherein Kentucky's per capita personal income is expressed as a percentage of the Southeastern average. This series shows Kentucky to have gained on the Southeastern states between 1940 and 1950, to have remained nearly constant from about 1950 to 1979 although with some decline during the early 1970s, and to have declined in the 1980-82 period. During the 1980-82 period, Kentucky's income performance declined relative to the national average whereas the Southeastern average continued to increase relative to the national average. Consequently, a decline is shown for 1980-82 in the series that expresses Kentucky's per capita personal income as a percentage of the Southeastern average. (Note that Florida and Virginia, both high income states, are included in the Southeastern group. Their inclusion causes the group arithmetic mean income to be unusually high and causes a larger than usual number of Southeastern states to be below the group average income.)

Table 1

Per Capita Personal Income, Kentucky and the Southeast Region Relative to the United States, 1940-1982

	Per Capita Personal Income		
	Percent of National Average		Kentucky as Percent of Southeast
Year	Kentucky	Southeast[1]	
1940	54.0	57.7	93.5
1950	65.6	69.2	94.8
1960	71.9	73.6	97.6
1970	78.5	82.0	95.7
1971	78.8	83.1	94.8
1972	79.4	84.3	94.2
1973	79.8	84.9	94.0
1974	82.9	85.5	96.9
1975	82.0	84.9	96.5
1976	82.7	85.3	96.9
1977	83.0	85.3	97.3
1978	82.2	85.5	96.0
1979	82.2	85.2	96.5
1980	80.5	85.6	94.0
1981	81.0	86.3	93.8
1982	80.4	86.4	93.0

[1]States of the Southeast Region are: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

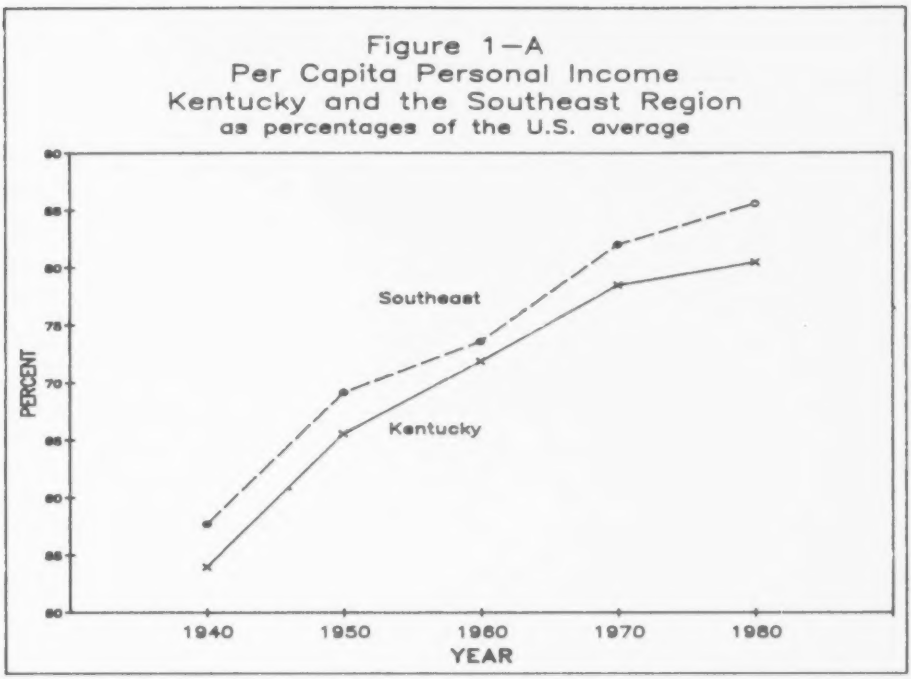


Figure 1—A
Per Capita Personal Income
Kentucky and the Southeast Region
as percentages of the U.S. average
PERCENT
Southeast
Kentucky
1940
1950
1960
1970
1980
YEAR

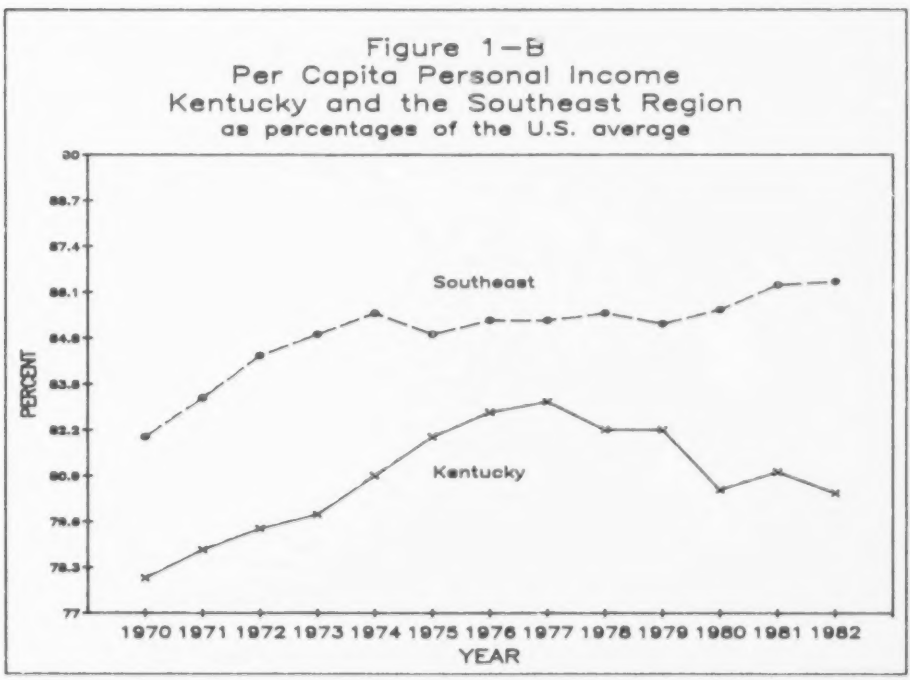


Figure 1—B
Per Capita Personal Income
Kentucky and the Southeast Region
as percentages of the U.S. average
PERCENT
Southeast
Kentucky
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982
YEAR

2. Sources of Personal Income

Total personal income is shown in Table 2 according to six major sources, for Kentucky and the nation, for 1970-82. These six sources, in 1982, provided 97.2 percent of Kentucky's total personal income by place of residence. Annual amounts are expressed as percentages of total personal income. Separate totals are shown for the farm and nonfarm sectors of the economy; each total is the sum of two main sources: income of wage and salary workers, and income of proprietors. Total personal income primarily includes these two sums from the farm and nonfarm sectors plus income from two additional sources that are not identified as farm or nonfarm: investment income (dividends, interest, and rents), and transfer income (mainly, governmental income support payments to individuals). The Kentucky economy is described by analyzing income sources in three ways: first, how important each source is in Kentucky; second, how these sources differ in importance between Kentucky and the nation; and third, how these characteristics have changed over the period of years shown.

In Kentucky, the nonfarm sector is a much larger source of personal income than is the farm sector. Within each sector, proprietors' income is most important in the farm sector while wage and salary workers' income is most important in the nonfarm sector. The other two sources—investment income, and transfer income—are similar in size, although transfer income is larger in all years.

The farm sector is roughly twice as important an income source in Kentucky as in the nation. Most of Kentucky's larger relative share of income from the farm sector is accounted for by proprietors' income; farm workers' wage and salary incomes are generally of equal importance in Kentucky and the nation. The nonfarm sector generally produces a smaller share of total income in Kentucky than is the case for the nation. Nonfarm proprietors' income, however, is a larger share of the total nonfarm income in Kentucky than in the nation. This suggests that smaller businesses are relatively more important in Kentucky than in the nation.

Several important changes occurred in the relative importance of particular income sources in Kentucky and the nation over the 13-year period shown in Table 2. Transfer income increased as a source of personal income for both Kentucky and the nation, but Kentucky exceeded the nation both in level of, and increase in, dependence upon transfer income. Kentucky's above average increase in dependence upon transfer income is an unfavorable change that suggests relatively depressed economic conditions. Investment income also increased in importance as a source of

personal income, but the increases were similar for Kentucky and the nation. Decreasing importance as income sources is shown for proprietors' income and wage and salary income in the nonfarm sector. Similarly, the totals for the farm and nonfarm sectors decreased in importance as income sources over the period, but the Kentucky and national changes were similar. Viewing the entire picture in Table 2, probably the most unfavorable change shown for the Kentucky economy is that transfer income is a large percentage of total personal income and, especially since 1978, an increasing percentage.

Charts of transfer income in Kentucky and the nation, shown in Figures 2-A and 2-B illustrate the large and increasing importance of transfer income in the Kentucky economy.

Table 2

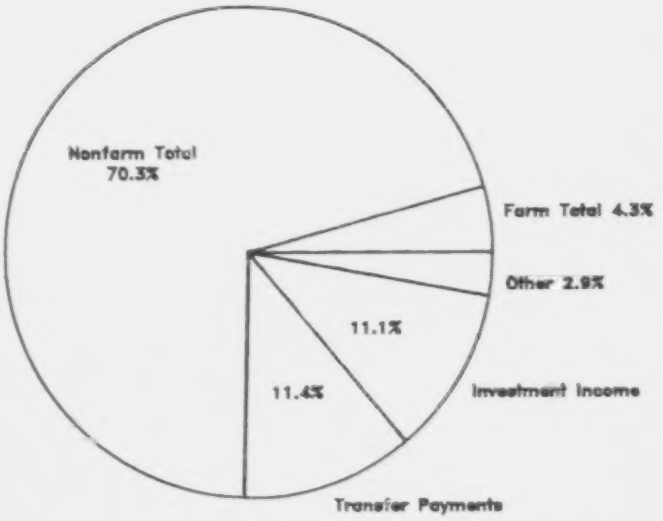
Major Sources of Personal Income, Kentucky and United States, 1970-82
(Percents of Total Personal Income by Place of Residence)[1]

	Farm Income			Nonfarm Income				
Year	Total	Proprietors	Wage and Salary Workers	Total	Proprietors	Wage and Salary Workers	Transfer Payments	Investment[2] Income
				Kentucky				
1970	4.3	3.7	.6	70.3	7.6	62.7	11.4	11.1
1971	4.1	3.5	.6	69.9	7.3	62.6	12.4	11.2
1972	4.6	4.1	.5	69.4	7.3	62.1	12.4	10.9
1973	4.8	4.3	.5	69.0	7.1	61.9	13.3	10.9
1974	5.0	4.4	.6	67.3	7.2	60.1	13.9	11.9
1975	3.5	3.1	.4	66.1	6.6	59.5	16.0	11.8
1976	3.7	3.2	.5	65.8	6.2	59.6	15.6	11.8
1977	3.8	3.3	.5	65.9	6.2	59.7	14.9	12.0
1978	3.5	3.0	.5	66.8	6.0	60.8	14.2	12.0
1979	3.7	3.3	.4	65.9	5.3	60.6	14.6	12.6
1980	2.9	3.4	.4	64.1	4.8	59.3	16.2	13.6
1981	3.8	2.5	.4	61.5	4.3	57.2	16.2	15.6
1982	3.2	2.8	.4	60.7	4.0	56.7	17.0	16.3
				United States				
1970	2.2	1.7	.5	73.4	6.5	66.9	10.0	13.8
1971	2.2	1.7	.5	72.5	6.3	66.2	11.0	13.7
1972	2.3	1.9	.4	72.3	6.2	66.1	11.1	13.3
1973	3.6	3.1	.5	71.1	5.8	65.3	11.3	13.5
1974	2.7	2.2	.5	70.3	5.4	64.9	12.2	14.2
1975	2.4	1.9	.5	68.3	5.2	63.1	14.2	14.0
1976	1.8	1.3	.5	68.8	5.4	63.4	14.0	13.9
1977	1.7	1.2	.5	68.8	5.5	63.3	13.5	14.2
1978	2.0	1.5	.5	68.6	5.3	63.3	13.0	14.5
1979	2.1	1.6	.5	68.1	5.1	63.0	12.9	15.3
1980	1.4	0.9	.5	66.5	4.4	62.1	13.8	16.4
1981	1.6	1.2	.4	64.5	3.7	60.8	13.9	18.4
1982	1.3	0.8	.5	63.7	3.4	60.3	14.6	18.8

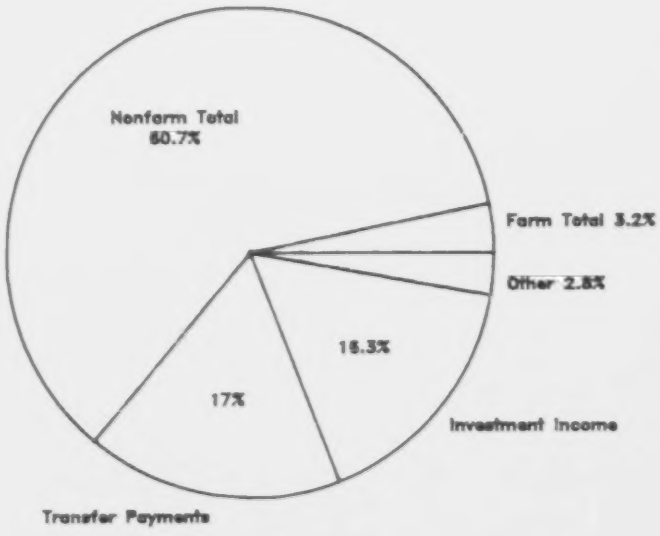
[1]These percents do not sum to 100%; the omitted categories of personal income include the personal contribution for social insurance, other labor income, and the residence adjustment.
[2]Investment income is from dividends, interest, and rents, including imputed net rental for owner-occupied nonfarm dwellings.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Figure 2–A
Major Sources of Personal Income
Kentucky

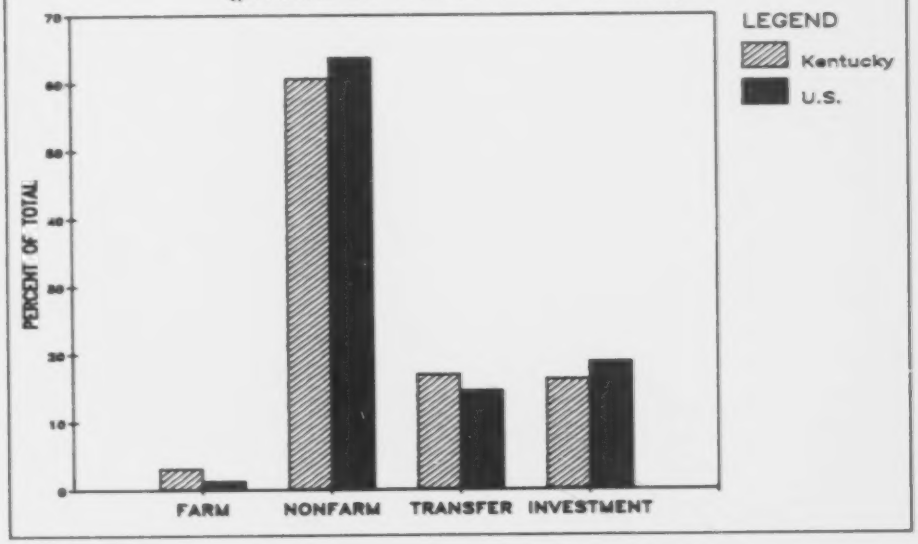


1970



1982

Figure 2–B
Major Sources of Personal Income
Kentucky and U.S., 1982
(percent of total Personal Income)



3. Personal Income in Kentucky ADDs and Counties

Local areas of Kentucky differ widely in income levels and in the degrees of income growth. Annual data about personal income are available for the 120 counties and also for the 15 groups of counties known as Area Development Districts (ADDs). Tables 3-A and 3-B reflect per capita personal income growth for Kentucky's 15 ADDs, as well as the Kentucky state average, for the period 1970 to 1981. The figures shown in Table 3-A are index numbers, with 1970 as the base year and equal to 100 percent for each ADD, allowing easy comparison of income growth over the period. In Table 3-B, annual amounts for the same groups and years are shown as percentages of the state average, allowing easy comparison among ADDs of the differences and changes in income levels. Figure 3-A is a map of counties and ADDs in Kentucky.

The large degree of income growth over the 12-year period, shown in Table 3-A, is heavily influenced by price inflation in the economy. Of particular interest is the degree to which income growth differed among ADDs, which comparison is faciliated by comparing particular ADDs with the state average. Between 1970 and 1981, *growth* in per capita personal income was below the state average in 4 ADDs (Lincoln Trail, KIPDA, Northern Kentucky, and Buffalo Trace) and above the state average in the other 11 ADDs. The large population in two of the slow growth ADDs (KIPDA and Northern Kentucky) largely explains the unequal division of the 15 ADDs into slow and fast income growth groups. The largest growth between 1970 and 1981 occurred in the Big Sandy ADD, followed closely by the Kentucky River and Cumberland Valley ADDs. Smallest growth was in the Lincoln Trail ADD.

Because both slow and fast degrees of income *growth* are found in Kentucky to be associated with low *levels* of income (and similarly for high levels of income), additional comparison is presented in Table 3-B of the per capita personal income levels in each ADD relative to the state average. The income level of each ADD is expressed as a percentage of the state average which, therefore, is 100 percent in all cases. The highest *level* of per capita personal income in 1970 was in the KIPDA ADD, although three others were above the state average (Northern Kentucky, Bluegrass, and Green River). The other 11 ADDs were below the state average in level of per capita personal income in 1970. (Note again that the large populations in three of the four high income ADDs explain the unequal division of the 15 ADDs into below and above average groups.) In 1981, the four ADDs that were above average in income in 1970 were again above average, but they were joined by a fifth—the Purchase ADD, which was slightly above average. The KIPDA and Northern Kentucky

ADDs declined in the degree to which they were above the state average, while the Bluegrass ADD improved its above-average position. Among the 11 ADDs with below average per capita income in 1970, even lower positions are shown in 1981 for two—the Lincoln Trail and Buffalo Trace ADDs. The other 9 showed varying degrees of improvement between 1970 and 1981 by moving closer to the state average. The difference between the highest and lowest ADDs in 1970 was 64 percentage points (128 less 64) while the range in 1981 was only 51 points (122 less 71) showing that differences decreased among ADDs in levels of per capita personal income between 1970 and 1981.

The analysis presented for per capita personal income in Kentucky counties is similar to that for ADDs: rates of growth over the years, and differences from the state average in particular years. Because of space limitations in this report, only 20 of the counties are analyzed. Table 3-C shows index numbers (1970 = 100) for the 12-year period 1970-81 for the ten highest and ten lowest Kentucky counties, plus the state average, in terms of per capita personal income. Because ranks changed between years, selection of the ten highest and lowest counties was according to their average rankings over the period studied.

Between 1970 and 1981, *growth* rates were below the state average in only four of the 20 counties shown. Three of the slow growth counties (Jefferson, Kenton, and Hardin) were in the top ten according to *level* of income. In the group of the ten poorest counties, nine (all but Menifee) grew at more than the state average in per capita personal income. This suggests that of the 20 counties shown, the poorer counties were growing faster than were the richer counties. The range of index numbers for 1981 was 225 percentage points (423 less 198); a similar comparison for 1980 (365 less 178 = 187) suggests that 1981 might have been a year of unusual growth for particular counties. It is important to remember, however, that the 1981 data are preliminary estimates and also that all data, especially for the most recent years, are subject to future revision by the source agency.

Levels of income are analyzed in Table 3-D for the same ten highest and lowest counties according to per capita personal income. All amounts are expressed as percentages of the state average, which is 100 percent in all cases. Income levels in 1970 differed by 92 points (132 - 40) between the highest and lowest counties (Jefferson and McCreary). In 1981, the range was nearly the same (143 - 53 = 90), but the highest and lowest counties were Bourbon and Clinton, respectively. Jefferson County, which had the highest level of per capita personal income in 1970 had slipped to third place in 1981, while McCreary County, in last place in 1970, not only moved up to fourth lowest in 1981 but gained about 14 percentage points on the state average. McCreary County was below Jef-

ferson County by 92 percentage points in 1970 but by only 74 points in 1981. Looking more generally at the ten lowest counties, improvement relative to the state average occurred in 9 counties between 1970 and 1981 while relative decline occurred in only one county (Menifee). The largest increase was in Magoffin County, which improved relative to the state average by 24 points between 1970 and 1981. Among the ten highest counties, 7 counties grew relative to the state average between 1970 and 1981 while 3 counties lost relative to the state average (Jefferson, Kenton, and Hardin).

The sizeable decline in income level of Hardin County and the large increase in Bourbon County are especially noteworthy. Income of counties and ADDs can be measured according to place of work or place of residence. Because much intercounty commuting of workers occurs in Kentucky, income changes or differences reported by place of work statistics do not necessarily indicate similar changes or differences in data reported by place of residence. For example, decline of business activity in a heavily industrialized county could cause income decline in neighboring counties from which workers commute. The income data in Tables 3-A to D are according to place of residence.

Some of the data for ADDs and counties are shown graphically in Figures 3-B to 3-E. Figure 3-B shows rates of growth in per capita personal income between 1970 and 1981 for the state average and the fastest (Big Sandy) and slowest (Lincoln Trail) ADDs. In Figure 3-C income levels relative to the state average are shown for the highest (KIPDA) and lowest (Lake Cumberland) ADDs. The highest (Magoffin) and lowest (Hardin) counties according to growth between 1970 and 1981 are plotted with the state average in Figure 3-D. These same counties are plotted according to income levels relative to the state average in Figure 3-E.

Table 3-A

Growth in Per Capita Personal Income, 15 Area Development Districts, and Kentucky, 1970-81
(Index Numbers: 1970 = 100)

	Area Development District	Per Capita Personal Income as Percentage of 1970 Amount											
		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
1	Purchase	100	108	115	132	149	158	179	202	219	246	252	286
2	Pennyrile	100	110	120	139	154	166	190	206	217	248	253	281
3	Green River	100	107	121	137	154	167	189	206	224	256	266	301
4	Barren River	100	106	119	137	154	164	190	206	231	258	257	296
5	Lincoln Trail	100	105	116	130	146	147	155	170	190	210	207	232
6	KIPDA	100	105	116	128	140	149	165	183	203	221	233	259
7	Northern Kentucky	100	105	114	127	141	150	166	184	205	228	239	258
8	Buffalo Trace	100	98	111	120	146	153	169	179	198	217	222	249
9	Gateway	100	104	119	132	151	167	185	202	224	247	248	274
10	FIVCO	100	106	110	125	148	160	185	203	228	256	260	284
11	Big Sandy	100	109	118	135	195	213	207	232	252	299	298	321
12	Kentucky River	100	110	120	139	180	190	195	220	243	277	277	312
13	Cumberland Valley	100	108	117	134	165	184	196	216	239	271	279	309
14	Lake Cumberland	100	110	121	135	152	160	181	196	222	243	250	285
15	Bluegrass	100	108	118	131	146	156	175	197	219	242	251	280
	State Average	100	106	116	129	146	155	170	187	206	230	244	272

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Table 3-B

Relative Levels of Per Capita Personal Income, 15 Area Development Districts, and Kentucky, 1970-81
(Index Numbers: 1970 = 100)

	Area Development District	Per Capita Personal Income as Percentage of State Average											
		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
1	Purchase	95	97	95	97	97	98	100	103	101	102	98	100
2	Pennyrile	96	99	99	103	102	103	108	106	101	104	100	99
3	Green River	101	102	106	107	106	109	112	111	110	113	110	112
4	Barren River	81	81	83	86	86	86	90	89	91	91	85	88
5	Lincoln Trail	95	94	95	95	95	90	86	86	87	87	80	81
6	KIPDA	128	127	128	127	123	124	124	125	126	123	122	122
7	Northern Kentucky	114	113	112	111	110	110	111	111	113	112	111	108
8	Buffalo Trace	85	79	81	79	85	84	84	81	81	80	77	78
9	Gateway	72	70	74	73	74	77	78	77	78	77	73	72
10	FIVCO	92	91	87	89	93	95	100	99	101	102	98	98
11	Big Sandy	72	74	73	75	96	99	88	89	88	94	88	85
12	Kentucky River	64	66	66	69	79	78	73	75	75	77	72	73
13	Cumberland Valley	67	68	67	69	76	80	77	77	77	79	76	76
14	Lake Cumberland	68	70	71	70	70	70	72	71	73	72	69	71
15	Bluegrass	106	108	108	108	106	107	109	111	113	111	109	109

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Table 3-C

Growth in Per Capita Personal Income, 10 Highest and Lowest Counties, and Kentucky, 1970-81
(Index Numbers: 1970 = 100)

Counties	Per Capita Personal Income as Percentage of 1970 Amount											
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
10 Highest												
Jefferson	100	105	115	127	138	147	162	180	200	219	239	264
Woodford	100	102	114	123	132	136	149	182	202	221	248	288
Fayette	100	107	115	127	137	149	165	186	208	230	252	284
Franklin	100	109	120	130	146	161	179	197	216	244	263	285
Hopkins	100	112	119	135	155	166	182	204	215	247	259	283
Boyd	100	104	106	122	144	159	184	204	230	257	270	294
Bourbon	100	103	118	132	139	143	158	214	244	267	307	360
Kenton	100	105	113	126	138	147	160	177	198	220	234	253
Hardin	100	102	113	128	139	135	133	147	162	177	178	197
Henderson	100	109	123	140	157	167	192	213	230	260	269	311
10 Lowest												
Wolfe	100	107	124	134	149	177	185	205	229	244	272	306
Rockcastle	100	103	115	128	155	152	171	184	209	232	253	284
Casey	100	112	121	133	153	152	176	181	207	228	246	280
Elliott	100	104	124	134	200	221	262	257	274	310	319	339
Magoffin	100	106	123	142	192	229	235	256	291	326	365	423
Jackson	100	108	119	133	157	171	188	196	221	240	257	285
Menifee	100	91	106	117	133	144	165	168	176	204	209	244
Clinton	100	106	126	140	158	159	177	190	203	228	243	278
Owsley	100	106	120	131	151	182	192	205	230	249	275	337
McCreary	100	115	128	152	180	200	208	226	263	293	325	367
State Average	100	106	116	129	146	155	170	187	206	230	244	272

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

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Table 3-D

Relative Levels of Per Capita Personal Income, 10 Highest and Lowest Counties, and Kentucky, 1970-81
(Index Numbers: 1970 = 100)

Counties	Per Capita Personal Income as Percentage of State Average											
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
10 Highest												
Jefferson	132	131	131	129	125	125	126	126	128	126	129	128
Woodford	129	124	126	123	117	113	113	125	126	124	131	136
Fayette	121	123	121	120	114	117	118	121	123	122	125	127
Franklin	117	120	121	117	117	121	123	123	122	124	125	122
Hopkins	115	121	118	120	122	123	123	125	119	123	122	119
Boyd	113	111	103	106	111	116	122	123	126	126	125	122
Bourbon	108	105	110	110	103	100	101	123	128	125	138	143
Kenton	120	119	118	117	114	114	113	114	116	115	115	112
Hardin	118	114	115	118	113	104	92	93	93	91	86	86
Henderson	105	108	111	113	112	113	118	119	117	118	115	120
10 Lowest												
Wolfe	52	53	56	54	54	60	57	57	58	56	58	59
Rockcastle	56	55	56	56	60	55	57	55	57	57	58	59
Casey	56	59	59	57	59	55	58	54	56	55	56	57
Elliott	45	44	48	47	62	65	70	62	60	61	59	56
Magoffin	43	43	46	47	57	64	60	59	61	61	65	67
Jackson	52	52	53	53	56	57	57	54	55	54	54	54
Menifee	60	51	55	54	54	56	58	53	51	53	51	54
Clinton	52	52	56	56	56	53	54	52	51	51	51	53
Owsley	45	45	47	46	47	53	51	49	50	49	51	56
McCreary	40	43	44	47	49	52	49	48	51	51	53	54

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Figure 3—A
Official Boundaries of the Kentucky Area Development Districts

Figure 3–B
Growth in Per Capita Personal Income,
Kentucky and Selected ADDs
(Index numbers: 1970=100)

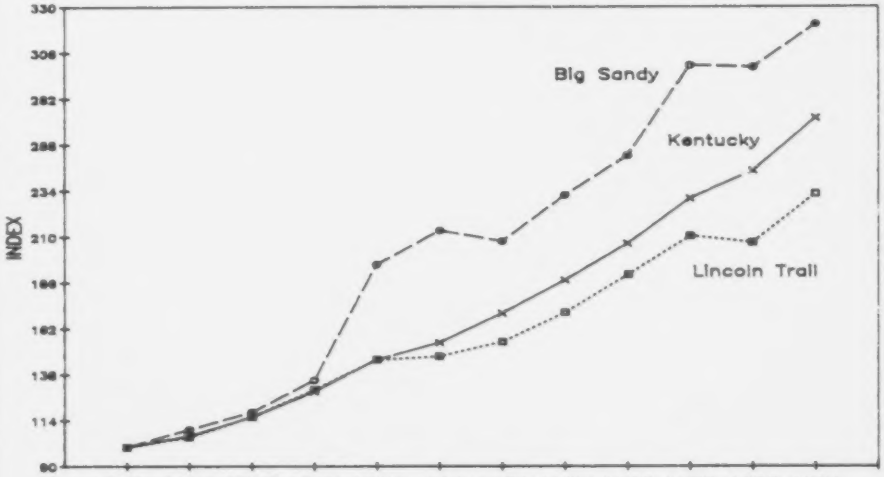


Figure 3–C
Levels of Per Capita Personal Income,
Highest and Lowest ADDs,
as percents of state average

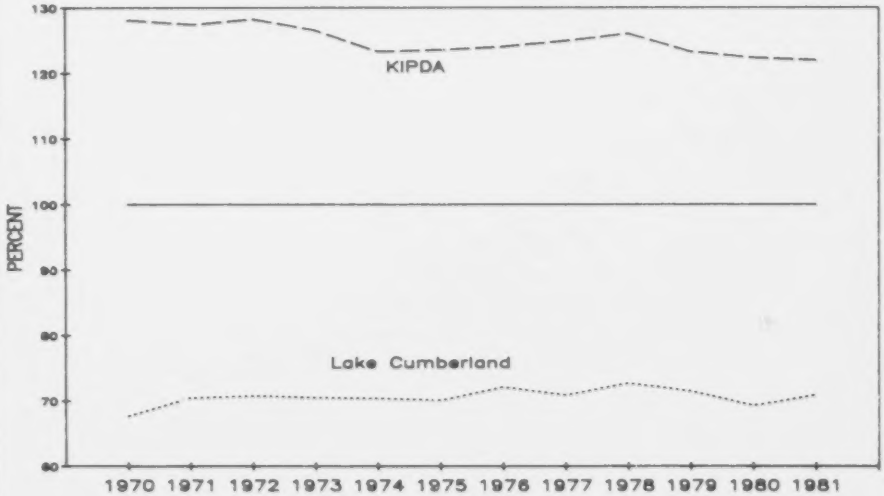


Figure 3—D
Growth in Per Capita Personal Income,
Kentucky, Magoffin and Hardin Counties
(Index numbers: 1970=100)

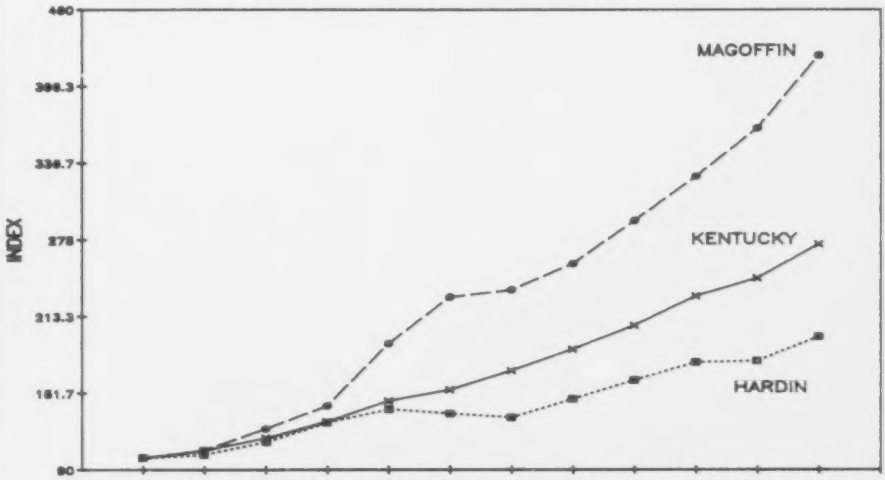
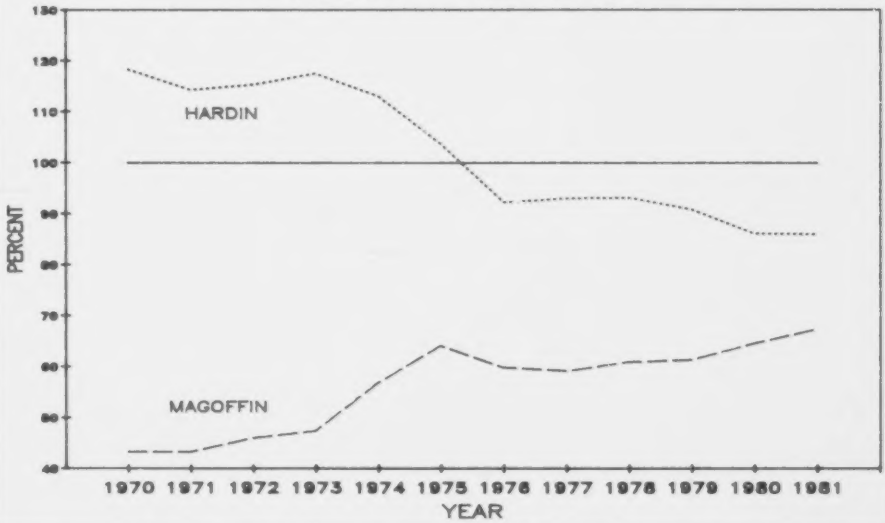


Figure 3—E
Levels of Per Capita Personal Income,
High and Low Growth Counties
as percents of state average



4. Income Growth Among Industry Groups

Incomes of nonfarm wage and salary workers are presented in Table 4 for Kentucky and the nation for the 13-year period 1970-82. Amounts are shown for the total and for eight major industry groups as index numbers with 1970 = 100. Much of the large degree of growth reflects price inflation. Of particular interest for analysis are income growth rate differences among the eight industry groups for Kentucky and between Kentucky and the nation.

Highest income growth in Kentucky between 1970 and 1982 occurred in the mining industry (index number of 573 in 1982). Other industry groups with high income growth were services (377) and finance (350). The 1982 index number for total wage and salary income was 296. Income growth rates were lower in construction (224), manufacturing (258), and government (271). Nearly average growth occurred in transportation (292) and trade (297). Between 1970 and 1982, some industry groups suffered from periods of slow growth, or decline, associated with national recessions. The construction industry had no growth in the 1973-75 period, and it declined after the 1979 high. Manufacturing declined in 1975, showed small gain in 1980, and declined in 1982. None of the other industry groups showed zero or negative growth during the period 1970-82.

Compared with the nation, Kentucky's growth in nonfarm wage and salary incomes was above the national rate for total workers, between 1970 and 1982. Growth above the national rate occurred specifically in mining, manufacturing, and trade. Lower than national growth rates occurred in construction and services while growth was approximately equal to the national rate of transportation, finance, and government. Cyclical downturns in the national data were only in construction and manufacturing—both in 1975 and 1982—and these declines were smaller for the nation than for Kentucky.

Plots of selected Kentucky series are presented in Figure 4. The above average income growth rates in finance and services are compared with the below average growth rates in construction and manufacturing. The mining industry is not included because its unusually large income growth rate would dominate and obscure the other series.

Table 4

Income Growth, Eight Industry Groups, Kentucky and United States, 1970-82
(Index Numbers: 1970 = 100)

Year	Total[1]	Mining	Construction	Manufacturing	Transportation	Trade	Finance	Service	Government
				Kentucky					
1970	100	100	100	100	100	100	100	100	100
1971	108	113	110	106	109	107	109	109	108
1972	118	129	120	121	119	115	117	118	116
1973	133	146	131	139	133	129	129	133	128
1974	148	207	131	152	147	143	146	148	140
1975	157	288	131	147	151	161	157	163	153
1976	177	309	149	170	173	179	177	184	167
1977	197	361	167	195	196	196	199	205	178
1978	223	403	215	217	224	227	227	235	194
1979	251	472	240	241	254	251	260	270	215
1980	265	501	224	247	269	264	296	305	232
1981	287	559	220	267	288	284	327	343	250
1982	296	573	220	258	292	297	350	377	271
				United States					
1970	100	100	100	100	100	100	100	100	100
1971	106	104	108	101	107	107	109	108	109
1972	116	114	117	111	118	116	120	121	119
1973	129	126	130	124	131	128	132	134	130
1974	140	152	139	134	141	142	144	150	141
1975	148	187	135	133	147	151	154	165	154
1976	163	210	146	150	164	167	170	184	168
1977	181	241	161	168	182	184	189	204	179
1978	203	282	189	189	207	208	217	234	194
1979	228	337	217	211	234	232	248	269	209
1980	249	409	228	224	256	253	284	308	231
1981	274	511	240	244	281	276	320	351	251
1982	288	535	237	242	294	289	355	388	270

[1]Included in the total, but not shown separately, are the small amount of wage earnings in agricultural services.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

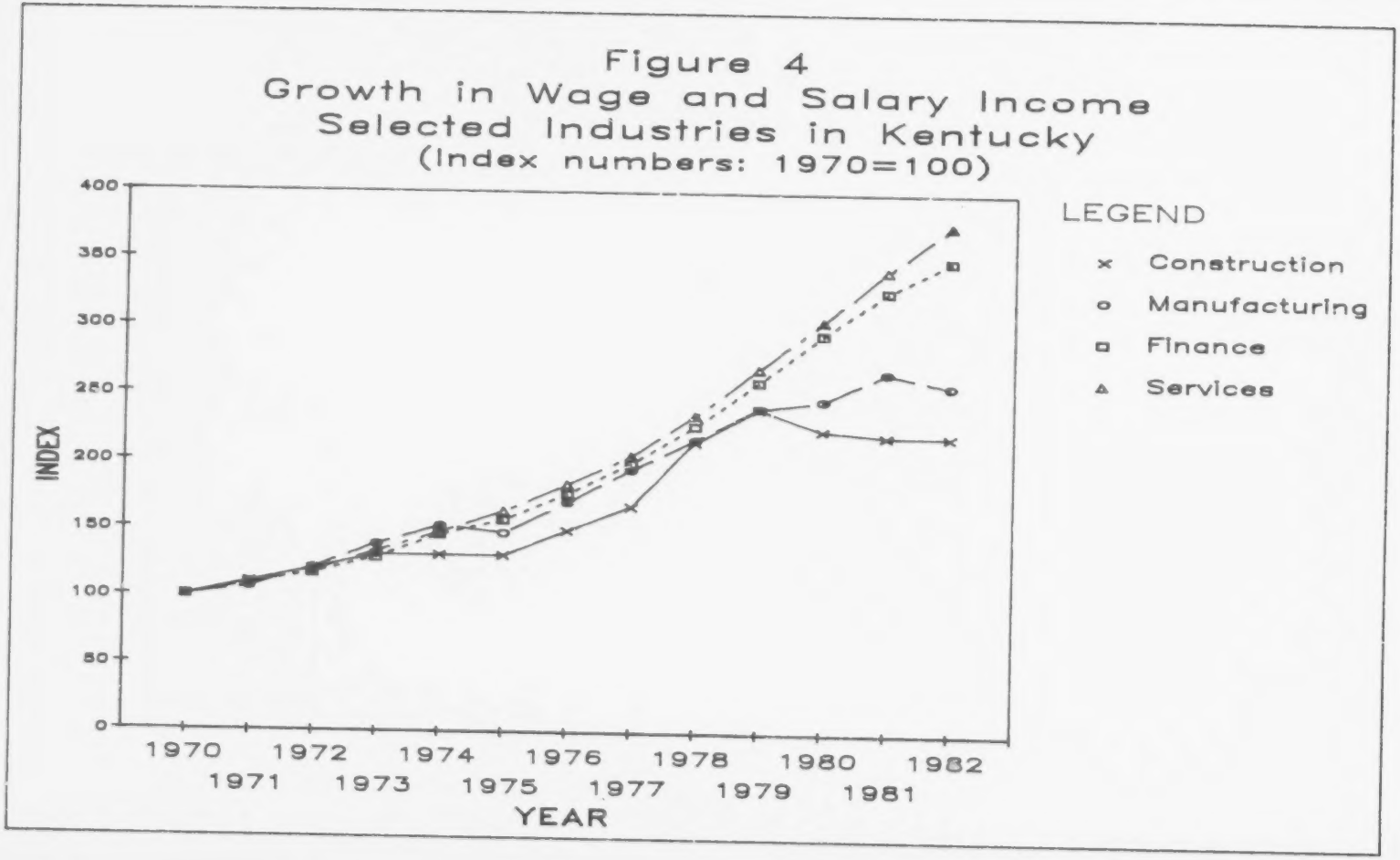


Figure 4
Growth in Wage and Salary Income
Selected Industries in Kentucky
(Index numbers: 1970=100)
INDEX
400
350
300
250
200
150
100
50
0
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND
Construction
Manufacturing
Finance
Services

5. Wage and Salary Income in Manufacturing

Table 5 presents annual wage and salary income of manufacturing workers in Kentucky and the nation, for the 13-year period 1970-82. Amounts are shown as index numbers (1970 = 100) for total manufacturing, total durable goods, and total nondurable goods. Previously in Table 4, manufacturing wage and salary income was shown to have grown at a lower rate, over the 1970-82 period, than the all industry total of wage and salary income. The comparison in Table 5 shows the differences in wage and salary income growth within total manufacturing, according to totals for durables and for nondurables. Note that the largest of the growth rates in Table 5 are less than the growth rate for the all industry total shown in Table 4.

Total manufacturing wage and salary incomes grew more in Kentucky than in the nation over the 13-year period, as shown by the 1982 index number of 258 for Kentucky and 242 for the nation. Kentucky's 1970 to 1982 manufacturing income growth rate exceeded the national rate in both the durable and nondurable series. In Kentucky, nondurable manufacturing income showed more strength than durable manufacturing over the period. This is shown not only by the higher 1982 index number for nondurables but also by the absence of cyclical declines in Kentucky nondurable manufacturing income. In 1975 and again in 1982, declines were recorded in wage and salary incomes in Kentucky's total and durable manufacturing series while the Kentucky nondurble series continued to rise. A similar pattern is shown in the national series, although the cyclical declines in total and durable manufacturing were less severe.

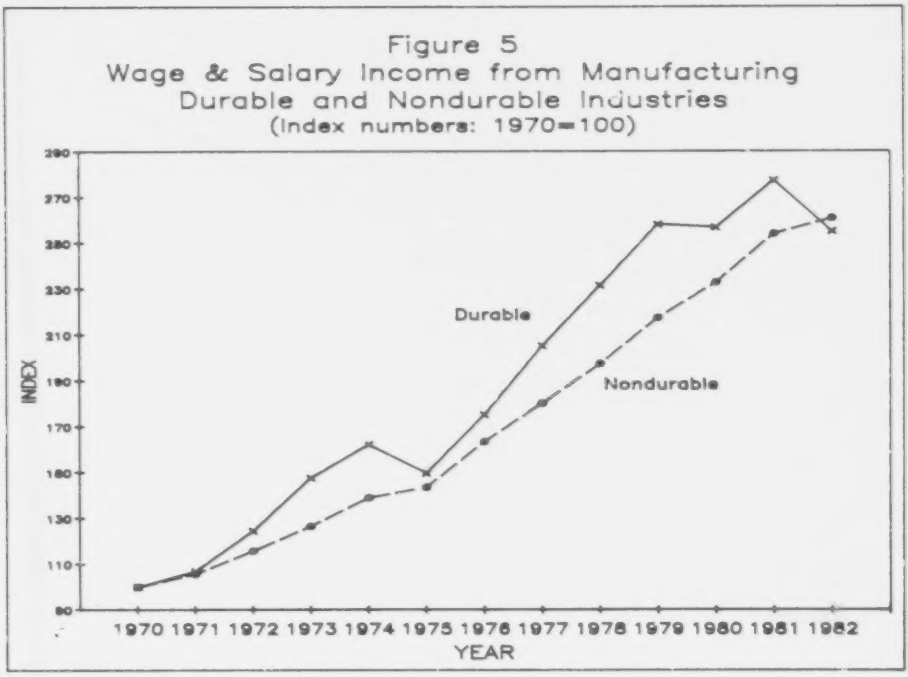
The plots of Kentucky's durable and nondurable manufacturing wage and salary incomes, in Figure 5, illustrate their different growth rates over the 13-year period.

Table 5

Growth in Manufacturing Wage and Salary Income, Kentucky and the United States, 1970-82 (Index Numbers: 1970 = 100)

	Kentucky			United States		
Year	Total Manufacturing	Durable Manufacturing	Nondurable Manufacturing	Total Manufacturing	Durable Manufacturing	Nondurable Manufacturing
1970	100	100	100	100	100	100
1971	106	107	106	101	100	103
1972	121	125	116	111	111	111
1973	139	148	126	124	127	120
1974	152	162	139	134	137	128
1975	147	150	144	133	135	132
1976	170	175	164	150	152	148
1977	195	205	180	168	172	162
1978	217	232	198	189	196	178
1979	241	258	218	211	221	195
1980	247	257	233	224	233	211
1981	267	277	254	244	253	228
1982	258	255	261	242	246	236

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.



6. Income Growth in Durable Manufacturing

Within the total wage and salary income of the durable manufacturing sector, particular industries showed different patterns of change over the 13-year period 1970-82, as indicated by the indexed values for Kentucky and the nation in Table 6. Of special interest are income growth differences in the various durable goods industries in Kentucky and the differences between Kentucky and the nation.

Between 1970 and 1982, larger growth rates in Kentucky were found in motor vehicles, primary metals, and machinery while the smaller growth rates were in furniture, fabricated metals, and electrical machinery. The Kentucky growth patterns differed from those of the nation in several industries. Those whose growth rates in Kentucky were above the national average were primary metals and motor vehicles. Largest growth nationally was in instruments while largest growth in Kentucky was in primary metals.

Cyclical influences are sizeable for these industries, not only because durable manufacturing is greatly influenced by the business cycle, but also because these industries are small parts of the unstable total of all manufacturing. All of the nine groups showed income declines for 1982 in Kentucky while the national series showed declines in seven groups but increases in two groups (electrical machinery and instruments).

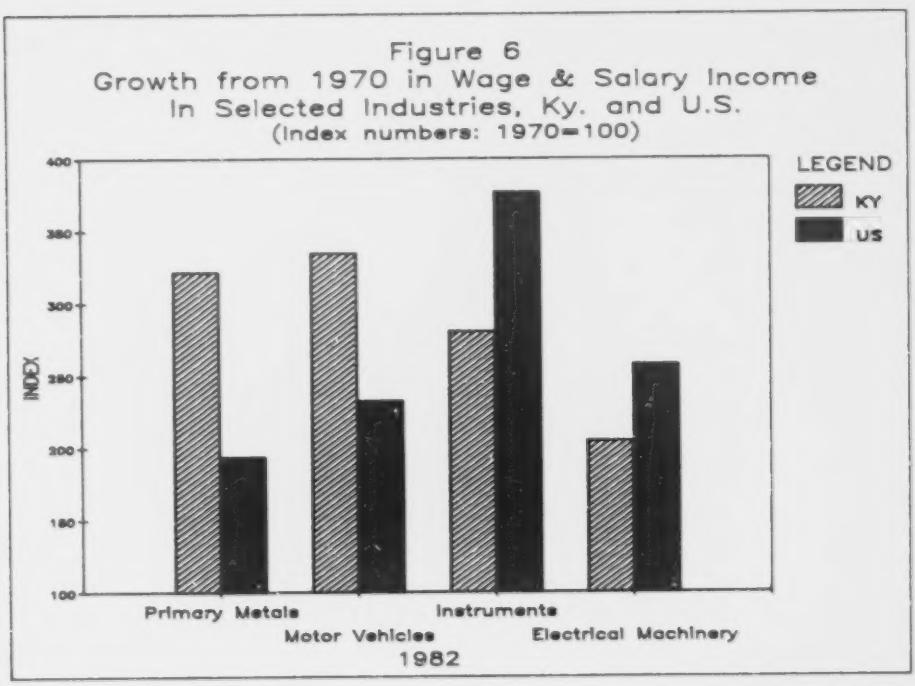
Charts of Kentucky and national series, presented in Figure 6, illustrate the large differences in growth rates between Kentucky and the nation in the highlighted industries.

Table 6

Income Growth, Nine Durable Manufacturing Groups,
Kentucky and the United States, 1970-82
(Index Numbers: 1970 = 100)

Year	Durable Manufacturing Industries								
	Lumber	Furniture	Primary Metals	Fabricated Metals	Machinery (Other)	Electrical Machinery	Motor Vehicles	Stone	Instruments
					Kentucky				
1970	100	100	100	100	100	100	100	100	100
1971	108	109	108	100	107	107	109	106	118
1972	117	123	122	116	122	128	140	119	145
1973	138	140	149	138	148	146	177	138	167
1974	146	135	171	148	172	149	205	149	213
1975	141	114	167	141	178	122	175	162	123
1976	170	138	196	161	195	149	223	179	177
1977	180	159	223	192	216	180	298	215	193
1978	201	169	257	211	247	199	356	243	204
1979	230	173	308	222	283	221	346	286	261
1980	221	168	325	206	303	215	295	285	251
1981	237	166	357	220	331	228	346	275	296
1982	212	157	322	204	303	205	335	265	281
					United States				
1970	100	100	100	100	100	100	100	100	100
1971	109	105	99	102	96	98	117	105	100
1972	123	120	111	113	107	105	136	116	110
1973	137	135	129	129	125	122	160	130	124
1974	144	139	146	140	143	131	154	138	138
1975	153	121	134	150	145	122	146	136	160
1976	185	138	150	168	158	136	187	152	180
1977	214	155	169	188	179	154	226	171	207
1978	244	176	191	211	206	178	252	195	234
1979	268	192	215	235	241	203	264	215	268
1980	259	197	213	244	264	224	232	220	308
1981	267	213	231	263	291	246	252	231	349
1982	248	211	194	250	281	258	233	221	377

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.



7. Income Growth in Nondurable Manufacturing

As was the case for durable manufacturing, growth of wage and salary workers' incomes among ten nondurable manufacturing groups differed within Kentucky, and between Kentucky and the nation. Large growth rates between 1970 and 1982 are shown in Table 7 for rubber, paper and, especially, petroleum refining (index number of 914 for 1982). Small growth rates were found in leather and apparel. Compared with the national data, Kentucky had higher than national income growth rates in petroleum refining, rubber, paper, and textiles. Other Kentucky groups also differed from the national series in income growth rates, but the differences were small. Probably the most important difference between the Kentucky nondurable and durable manufacturing industries, as shown in Tables 5-7, is the much smaller 1982 cyclical downturn in nondurables: six nondurables increased in 1982 over 1981, two series decreased, and the remaining two were relatively unchanged. In contrast, all of the Kentucky durable goods series declined in 1982 (Table 6). Nationally, nondurable goods had a similar pattern overall, although particular series differed between the nation and the state.

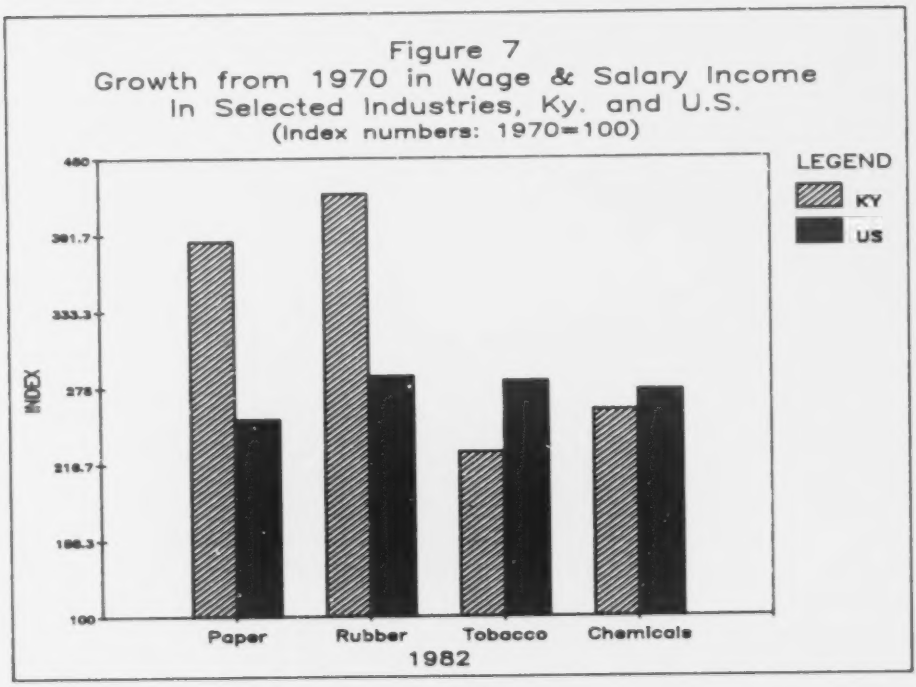
The paper and rubber nondurable manufacturing industries, whose income growth rates differed by large degrees between Kentucky and the nation, are depicted in Figure 7. The tobacco and chemical industries are included to show areas where national growth exceeded Kentucky's growth. Petroleum refining is omitted because the very large Kentucky increase would dominate and obscure the other differences.

Table 7

Income Growth, Ten Nondurable Manufacturing Groups, Kentucky and United States, 1970-82 (Index Numbers: 1970 = 100)

Year	Nondurable Manufacturing Industries									
	Food	Textiles	Apparel	Paper	Printing	Chemicals	Petroleum Refining	Tobacco	Rubber	Leather
					Kentucky					
1970	100	100	100	100	100	100	100	100	100	100
1971	103	108	105	113	102	101	194	102	122	105
1972	107	122	121	131	108	108	166	116	146	125
1973	112	135	132	149	120	118	167	132	161	132
1974	120	158	137	167	129	132	319	143	178	136
1975	130	154	134	195	130	142	374	146	151	128
1976	144	184	159	225	144	165	455	158	176	151
1977	157	203	169	253	155	189	551	164	214	137
1978	165	207	179	278	176	207	601	181	283	150
1979	179	221	197	311	196	226	695	190	341	153
1980	192	222	211	340	216	244	772	202	349	162
1981	204	232	219	369	240	259	845	233	421	168
1982	221	249	219	387	253	258	914	226	423	155
					United States					
1970	100	100	100	100	100	100	100	100	100	100
1971	104	104	103	103	103	103	106	103	105	99
1972	108	117	111	112	110	109	113	109	121	104
1973	114	128	120	122	118	118	120	120	137	105
1974	125	129	122	132	126	133	135	131	145	105
1975	132	122	120	132	131	141	154	138	141	101
1976	145	142	139	153	143	157	173	150	163	116
1977	157	151	146	170	157	175	193	158	195	118
1978	171	163	160	187	174	192	215	175	220	127
1979	186	173	168	207	193	212	235	195	248	133
1980	201	179	177	223	215	235	264	225	253	140
1981	215	187	188	243	235	256	294	262	282	155
1982	224	177	184	251	253	273	315	280	284	148

Source: Same as Table 6.



8. Rates of Total and Insured Unemployment

Rates of unemployment vary widely over the years, mainly due to the business cycle. Two types of unemployment rates are presented in Table 8 for Kentucky and the nation. *Total* unemployment rates are derived from the household surveys conducted nationally each month while the *insured* rates are determined from the state Unemployment Insurance programs. The insured rate includes only unemployed persons who are eligible for Unemployment Insurance benefits. The total unemployment rate reflects all members of the civilian labor force who are not employed but who are seeking employment. Note that with unemployment statistics, high rates are regarded as unfavorable and increasing rates indicate worsening of the economy. These movements are generally the opposite of other economic series wherein high values are considered as favorable and increasing values indicate improvement. Unemployment rates can be analyzed for Kentucky and the nation according to the comparative levels of the rates and also according to the degrees of increase during recessions. To simplify the analysis, reference is made only to total unemployment rates, except when an important difference occurs in the patterns of change for total and insured unemployment rates.

The *levels* of total unemployment rates were lower in Kentucky than in the nation in almost all of the years in the period 1970-79. Therefore, the higher-than-national total unemployment rates in Kentucky in the three years 1980-82 (and continuing through 1983) are an important departure from the previous relationship. The Kentucky insured unemployment rate began to exceed the national rate earlier—in 1978. The two national recessions of the 1980-82 period had a greater impact on employment and income in Kentucky than in the nation, and the unusally high unemployment rates in Kentucky during the period are a further indication of this situation. Other factors that likely affected the Kentucky unemployment rates are the slower-than-national rate of growth in income and employment that began around 1978 in Kentucky.

Degrees of increase (worsening) in unemployment rates during economic recessions can be computed from the data in Table 8. Kentucky's total unemployment rate increased from 4.5 to 7.3 percent from 1974 to 1975, for an increase of 2.8 percentage points or 62 percent over the 1974 rate. The national total unemployment rate increased from 5.6 to 8.5 percent during that period, for an increase of 2.9 percentage points or 52 percent over the 1974 rate. Total unemployment rates for Kentucky and the nation increased again from 1979 to 1980. Kentucky's rate increased by 2.5 percentage points or by 45 percent over the 1979 rate while the national rate increased by 1.4 percentage points or by 24 per-

cent over the 1979 rate. Between 1978 and 1982, Kentucky's total unemployment rate increased by 5.3 percentage points or by 100 percent over the 1978 rate while the national rate increased by 3.6 percentage points or by 59 percent over the 1978 rate. Generally, Kentucky exceeded the national average in degrees of worsening in total unemployment rate during all of the recessions of the 1970-82 period.

Differences in the level and changes in total unemployment rates for Kentucky and the nation are illustrated by the plot in Figure 8.

Table 8

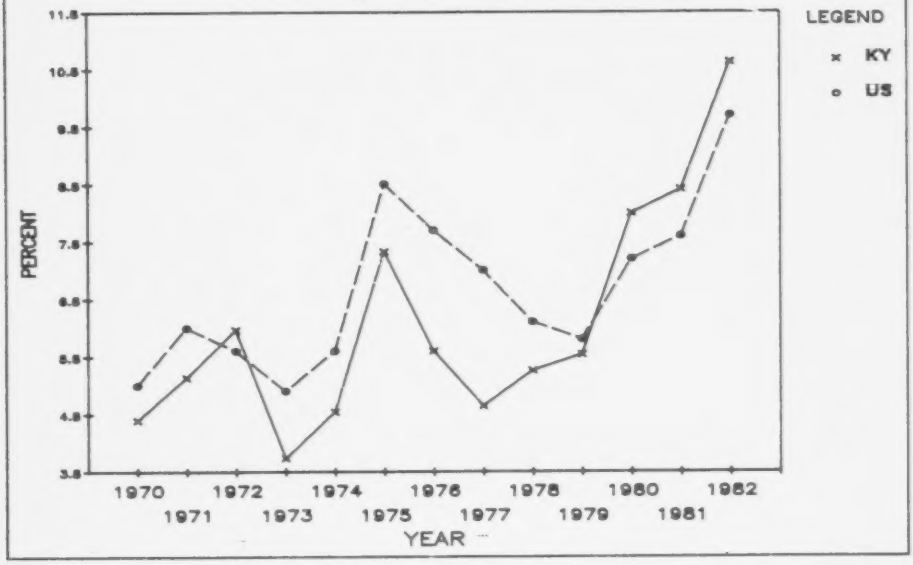
Unemployment Rates, Total and Insured, Kentucky and United States, 1970-82

	Total Unemployment Rates		Insured Unemployed Rates	
Year	Kentucky	United States	Kentucky	United States
1970	4.4	5.0	3.1	3.5
1971	5.1	6.0	3.6	4.0
1972	6.0	5.6	2.5	3.4
1973	3.7	4.9	2.1	2.7
1974	4.5	5.6	2.8	3.5
1975	7.3	8.5	5.9	5.9
1976	5.6	7.7	3.9	4.4
1977	4.6	7.0	3.4	3.8
1978	5.3	6.1	3.3	3.2
1979	5.5	5.8	3.3	3.0
1980	8.0	7.2	5.4	3.9
1981	8.4	7.6	4.5	3.4
1982	10.6	9.7	5.9	4.6

Note: Total unemployment rates are computed by expressing the number of unemployed persons as a percentage of the entire civilian labor force. The insured unemployment rates are computed by expressing the annual average numbers of weekly claimants for unemployment insurance benefits as a percentage of the annual average number of workers in jobs "covered" by the unemployment insurance programs. The definition of covered employment has changed over the period 1970-82. Also, there has not been total comparability between state and national definitions relative to unemployment insurance programs. An important difference between the two types of rates is that a new entrant to the labor force, who had not previously been gainfully employed and who now is unemployed, is not eligible for benefits under the unemployment insurance programs.

Source: The Kentucky total unemployment rate is from the Department for Manpower Services; the Kentucky insured unemployment rate is from the Department for Social Insurance; both are in the Kentucky Cabinet for Human Resources. The U.S. total and insured unemployment rates are both from the Bureau of Labor Statistics, U.S. Department of Labor.

Figure 8
Total Unemployment Rates
Kentucky and United States



9. Sources of State-Local Governmental Revenue

General revenue refers to all state-local governmental revenue except that collected for the Unemployment Insurance programs and by government owned businesses. Total general revenue is from two sources: federal aid, and the state-local governments' own sources. A further division is made of "own-source" revenue into two parts: tax revenue, and nontax revenue (such as sewer charges, hunting licenses, fines, etc.). These revenue sources differ in importance between Kentucky and the 50-state average, and these relationships have changed over the 12-year period 1970-81 for which data are presented in Table 9. Parts of total general revenue are shown as percentages of total general revenue.

Kentucky consistently exceeded the 50-state average, over the 12-year period, in percent of total general revenue from federal aid. Also, Kentucky raised a smaller percentage of total general revenue from its own tax and nontax sources than was true for the 50-state average. Within the total of own-source revenue, Kentucky's dependence on nontax sources has been fairly constant over the 12-year period, although with some variations. Compared with the 50-state average, Kentucky's dependence on nontax revenue was above average in the period 1970 through 1978 but fell below the 50-state average in 1979-81. This change in position relative to the 50-state averaged resulted not because Kentucky placed less emphasis on nontax revenue but instead because the 50-state average's dependence on nontax revenue increased to a greater degree than Kentucky's dependence increased.

Because of Kentucky's above average percentage of general revenue from federal aid (in all of the 12 years) and from nontax revenue (in all years but 1979-81), Kentucky appears to be a below-average user of taxes for generating general revenue. The percentage of total general revenue from own-source taxes was below the 50-state average in Kentucky in all of the 12 years. This difference is illustrated by the plot in Figure 9 of own-source tax revenue for Kentucky and the 50-state average.

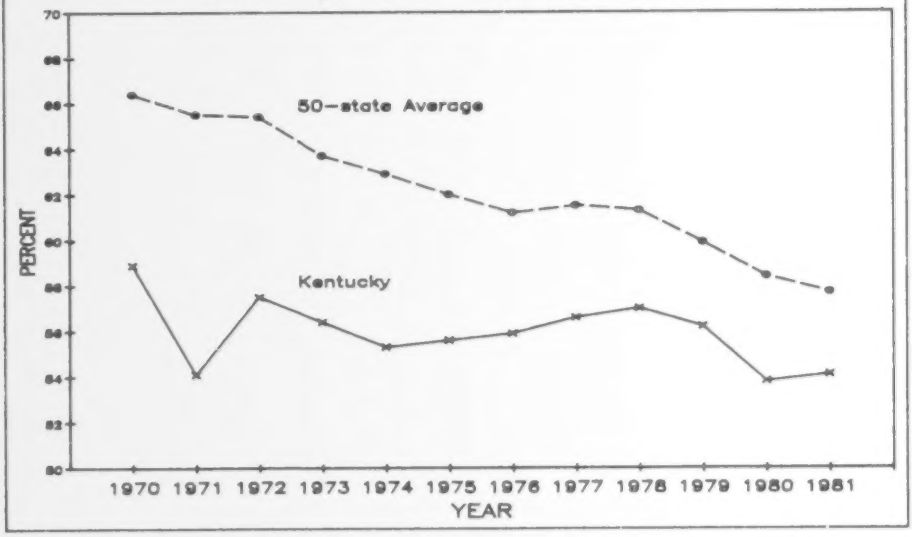
Table 9

Sources of State and Local Government General Revenue, Totals and Types, Kentucky and the 50-State Average, 1970-81

	Parts as Percentages of Total General Revenue			
		Own-Source Revenue		
Year	Federal Aid	Total	Tax	Nontax
	Kentucky			
1970	22.8	77.2	58.9	18.3
1971	27.7	72.3	54.1	18.2
1972	24.2	75.5	57.5	18.0
1973	26.5	73.4	56.4	17.0
1974	26.0	74.0	55.3	18.7
1975	25.6	74.4	55.6	18.8
1976	26.7	73.3	55.9	17.4
1977	26.5	73.5	56.6	16.9
1978	26.2	73.8	57.0	16.8
1979	26.6	73.4	56.2	17.2
1980	26.8	73.1	53.8	19.3
1981	27.3	72.7	54.1	18.6
	50-State Average			
1970	16.7	83.3	66.4	16.9
1971	18.0	81.9	65.5	16.4
1972	18.8	81.2	65.4	15.8
1973	20.6	79.4	63.7	15.7
1974	20.1	79.8	62.9	16.9
1975	20.6	79.4	62.0	17.4
1976	21.7	78.3	61.2	17.1
1977	21.9	78.1	61.5	16.6
1978	22.0	78.0	61.3	16.7
1979	21.9	78.1	59.9	18.2
1980	21.7	78.2	58.4	19.8
1981	21.3	78.6	57.7	20.9

Source: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances*, various years; through the Kentucky Economic Information System.

Figure 9
Own Source Tax Revenue
as a Percent of General Revenue,
Kentucky and 50–state Average



10. State-Local Governmental Tax Effort

Tax effort is the degree to which a government makes use of its tax-raising ability, and its ability is measured by its economic and taxable values. The two most commonly used tax effort measures are *taxes per capita* (total state-local tax revenue divided by the state's population) and *taxes as a percentage of personal income* (total state-local tax revenue expressed as a percentage of the state's total personal income). Comparison of these measures, over the years and among states, is made easy by converting each state's tax effort values as percentages of a similar value for the total of all state-local governments in the nation (50-state average). For example, taxes per capita of $787 for Kentucky and $1,066 for the 50-state average in 1981, show Kentucky's tax effort to be 73.8 percent of the national average according to this method. Similarly, Kentucky's taxes were 9.2 percent of personal income in 1981 while the 50-state average was 10.2 percent, showing Kentucky's tax effort to be 90.4 percent of the national average according to this method.

Kentucky consistently occupied a below-average position—for both tax effort measures and for all of the 12 years 1970-81, as shown in Table 10. Over the years, however, Kentucky's tax effort varied relative to the 50-state average. In taxes per capita, Kentucky declined relative to the 50-state average from 1970-72, increased slightly from 1973-75, declined again from 1976-77, grew to the highest point in 1979, but declined again in 1980 and 1981. (Kentucky's unusual relative increase for 1979 was probably caused by the large tax reductions that were legislated in some other states. These were inspired by California's Proposition 13, but did not occur in Kentucky until the following fiscal year.) These tax effort fluctuations probably are not the result of business cycle fluctuations in the national economy because both Kentucky and the nation are affected in a generally similar manner by business cycles. If a recession caused the 50-state average amount of taxes per capita to grow at a slow rate, the same would likely occur in Kentucky. Thus, a decline in Kentucky's taxes per capita, when expressed as a *percentage of the 50-state average amount*, indicates that total Kentucky tax revenue grew at less than the 50-state average rate. Tax *law* changes, as they differ between Kentucky and the other states, probably are the more important cause of the tax effort fluctuations.

When measured according to taxes as a percentage of personal income, the level of Kentucky tax effort is consistently higher than when measured according to taxes per capita. This reflects Kentucky's below-average level of per capita personal income. If, for example, both a low-income and high-income state collected the same number of dollars of tax revenue

per capita, the low income state would appear to be making the higher effort according to this second measure of tax effort. Also, the pattern of fluctuation over the years differs between the two tax effort measures because the percentage-of-income measure can vary for two reasons—tax revenue changes, and personal income changes. The levels and variations of Kentucky's tax effort are illustrated by plots in Figure 10, showing Kentucky as a percentage of the national average for both series—taxes per capita, and taxes as a percentage of personal income.

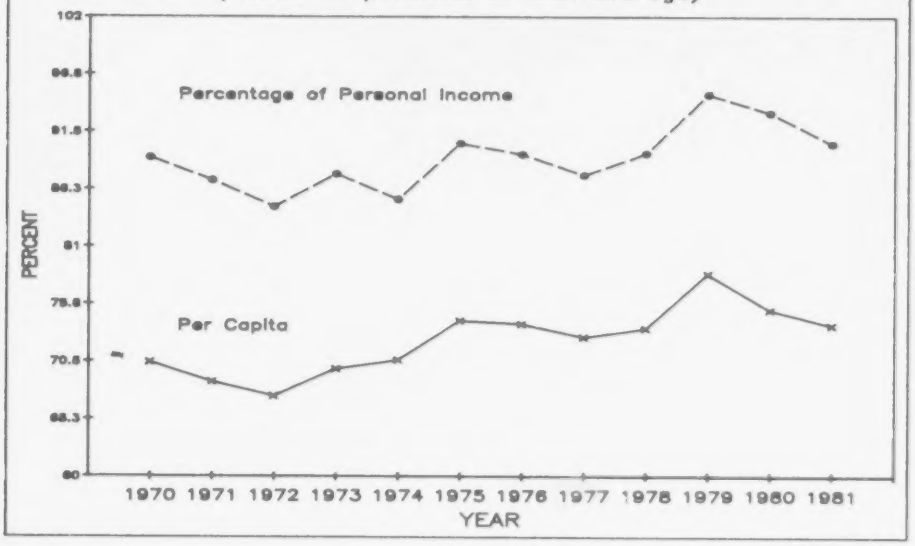
Table 10

State-Local Tax Revenue, Per Capita and Percent of Personal Income, Kentucky and 50-State Average, 1970-81

	State-Local Tax Revenue					
	Dollars Per Capita			Percent of Personal Income		
Year	Kentucky	50-State Average	Kentucky as a % of Average	Kentucky	50-State Average	Kentucky as a % of Average
1970	299	425	70.4	9.6	10.8	89.1
1971	315	459	68.6	9.6	11.0	87.0
1972	350	520	67.3	9.7	11.5	84.6
1973	400	573	69.8	10.0	11.4	87.6
1974	433	613	70.6	9.6	11.2	85.3
1975	487	656	74.2	10.2	11.2	90.4
1976	533	721	73.9	10.1	11.3	89.4
1977	582	800	72.7	10.0	11.5	87.5
1978	641	872	73.5	10.0	11.2	89.5
1979	714	915	78.5	10.0	10.6	94.9
1980	740	984	75.2	9.7	10.4	93.2
1981	787	1066	73.8	9.2	10.2	90.4

Source: Same as Table 9.

Figure 10
Kentucky State—Local Tax Revenue:
Per Capita, and as % of Personal Income
(shown as percents of U.S. average)



11. Coal Production, Employment and Income

The performance of Kentucky and the other coal producing regions of the nation, over the period 1960-82, is shown in Table 11-A. Annual coal production is shown for the nation and its three major regions, and for Kentucky and its two major regions, with all amounts expressed as index numbers based on 1970 production equal to 100. Kentucky's Eastern region is part of the nation's Appalachian region while Kentucky's Western region is part of the nation's Interior region. The nation's Western region contains such states as Wyoming and Montana which in recent years have developed into major coal producers. Note that index numbers based on 1970 allow easy comparison of *growth* rates but do not show the *size* of total coal production in one region compared with others.

Coal production in the nation's Western region has grown at a very rapid rate over the period 1960-82. The nation's two other regions have shown very modest growth during that period and have even declined below the 1970 level in some years. The index numbers in Table 11-A were below 100 for the Appalachian region in 1971-78, and for the Interior region in 1971, 1974, 1977-79, and 1981, indicating that coal production in these years was below the 1970 level. But the nation's Western region increased production during the entire 1960-82 period. Differences in growth rates among the three national coal production regions are illustrated by the plot in Figure 11-A.

Kentucky's growth rates in coal production differ from the national patterns, as shown in Table 11-A. Kentucky's total coal production, since 1970, grew at slightly above the national rate in most of the period 1971-77 but at less than the national rate from 1978-82. Within Kentucky, the Eastern region grew at greater than the national rate for most of the period 1960-82. Very little growth in coal production occurred in Kentucky's Western region; its index numbers exceeded 100 only in 1973, 1975, and 1976. While Kentucky's Eastern region had a 1982 index number of 153.6, its Western region had an index value of only 73.4. These changes between Kentucky regions are somewhat similar to the changes occurring among national regions; Kentucky's Eastern region and the nation's Western region are growing more rapidly than the other regions, and this is especially the case for the nation's Western region. It is interesting to note, however, that although Kentucky's Eastern region is part of the nation's Appalachian region, the Kentucky region experienced a much faster rate of growth than the national region. The illustration in Figure 11-B depicts growth in coal production in Kentucky's Eastern and Western regions.

Kentucky and the United States are compared in Table 11-B according to employment and income of wage and salary workers in coal mining, as well as according to coal production. Annual totals for Kentucky and the nation are shown as index numbers (1970 = 100) for the 13-year period 1970-82. Index numbers for the two production series are identical with those shown in Table 11-A, but comparison with the employment and income series reveal some interesting differences in growth rates between the three Kentucky series and also the three national series. Both the employment and income series for Kentucky and the nation had larger growth rates than the production series.

The much larger growth in income than in production is mainly the result of price and wage inflation in the economy during the years since 1970. But the income growth was larger in Kentucky than in the nation, which is partly explained by the larger increase in coal mining employment in Kentucky than in the nation. Why did Kentucky experience a greater-than-national rate of increase in coal mining employment while its coal production increased at less than the national rate, especially since about 1977? The answer probably lies in differences between Kentucky and the nation in types of coal mining. Labor needed per ton of coal is greater for underground than for surface mining, and the relative importance of underground mining is greater for Kentucky than the nation. Even though Kentucky's employment in the coal industry reached a plateau or slightly declined in the period 1979-82, the 1982 index number for Kentucky coal employment (211.9) is much larger than the national index number (170.1). Growth in the Kentucky and national series for coal employment and income are illustrated by the plots in Figure 11-C.

Table 11-A

Regional Production of Coal, Kentucky and United States, 1960, 1965 and 1970-82 (Index Numbers: 1970 = 100)

	Kentucky Regions			United States Regions			
Year	Total	Eastern	Western	Total	Appalachian	Interior	Western
1960	53.3	50.0	57.9	68.9	72.7	65.9	41.8
1965	68.4	64.2	74.2	84.9	89.8	79.3	57.8
1970	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1971	95.3	98.7	90.6	91.6	89.5	90.5	120.4
1972	96.7	95.0	99.1	98.7	92.2	104.5	144.0
1973	101.9	102.0	101.7	98.1	89.6	102.6	172.2
1974	109.5	117.7	98.2	100.1	90.2	99.3	214.8
1975	114.6	120.4	106.7	107.5	94.1	108.1	255.6
1976	114.9	125.7	100.1	112.6	96.8	107.5	314.6
1977	116.7	129.6	99.1	114.7	99.6	95.1	380.6
1978	108.3	132.7	74.7	110.3	93.5	84.9	424.0
1979	119.6	147.1	81.8	129.0	107.5	98.6	519.7
1980	119.8	150.6	77.6	137.6	112.3	102.3	597.7
1981	125.7	162.5	75.1	136.6	109.4	96.7	637.6
1982	119.8	153.6	73.4	139.0	109.5	103.5	645.2

Source: U.S. Department of the Interior, Bureau of Mines and Minerals, *Minerals Yearbook*, issues for 1960 to 1975; U.S. Department of Energy, Energy Information Administration, *Coal Production*, issues for 1976 to 1982; Kentucky data through the Kentucky Economic Information System.

Table 11-B

Coal Mining Production, Employment, and Wage and Salary Income, Kentucky and the United States, 1970-82 (Index Numbers: 1970 = 100)

	Kentucky			United States		
Year	Coal Production	Coal Mining Employment	Coal Mining Income	Coal Production	Coal Mining Employment	Coal Mining Income
1970	100.0	100.0	100.0	100.0	100.0	100.0
1971	95.3	108.7	114.2	91.6	100.6	106.5
1972	96.7	116.1	132.6	98.7	112.1	129.9
1973	101.9	117.4	151.3	98.1	113.5	140.7
1974	109.5	151.5	221.2	100.1	123.7	172.9
1975	114.6	182.4	312.9	107.5	149.9	243.2
1976	114.9	183.9	336.6	112.6	158.6	277.4
1977	116.7	191.4	394.4	114.7	159.0	312.7
1978	108.3	206.8	440.3	110.3	147.9	337.6
1979	119.6	216.5	516.4	129.0	183.1	407.4
1980	119.8	208.4	547.7	137.6	181.1	439.8
1981	125.7	208.8	609.5	136.6	158.4	460.8
1982	119.8	211.9	621.4	138.2	170.1	496.7

Source: Same as for Table 11-A, and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings;* U.S. Department of Commerce, Bureau of Economic Analysis; and Kentucky Cabinet for Human Resources, Department of Manpower Services.

Figure 11—A
Growth in Coal Production
in National Regions
(Index numbers: 1970=100)

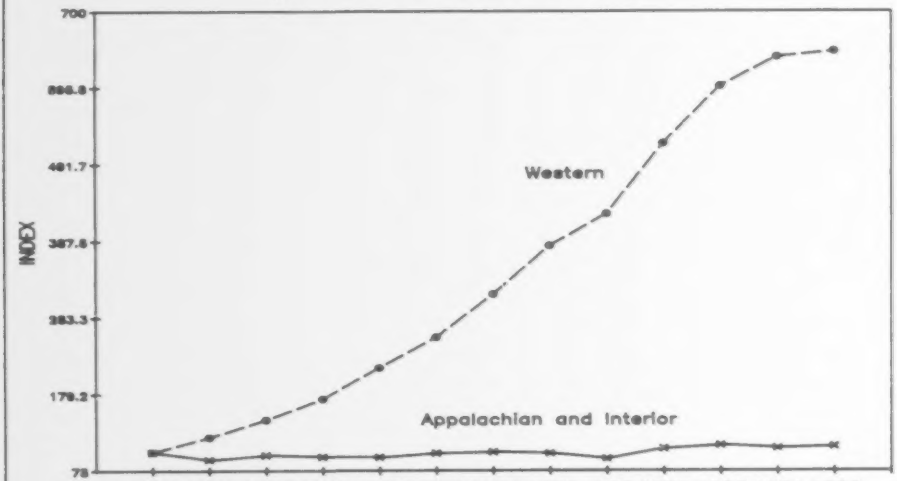


Figure 11—B
Growth in Coal Production
in the Two Kentucky Regions
(Index numbers: 1970=100)

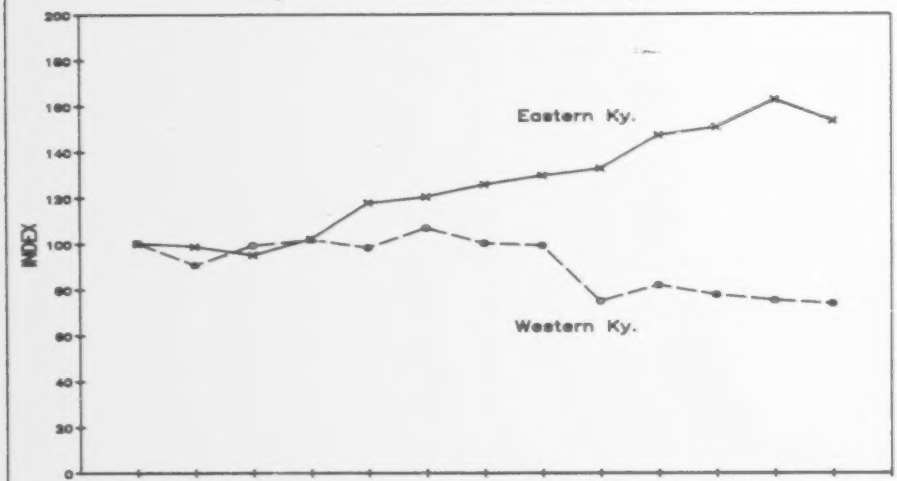
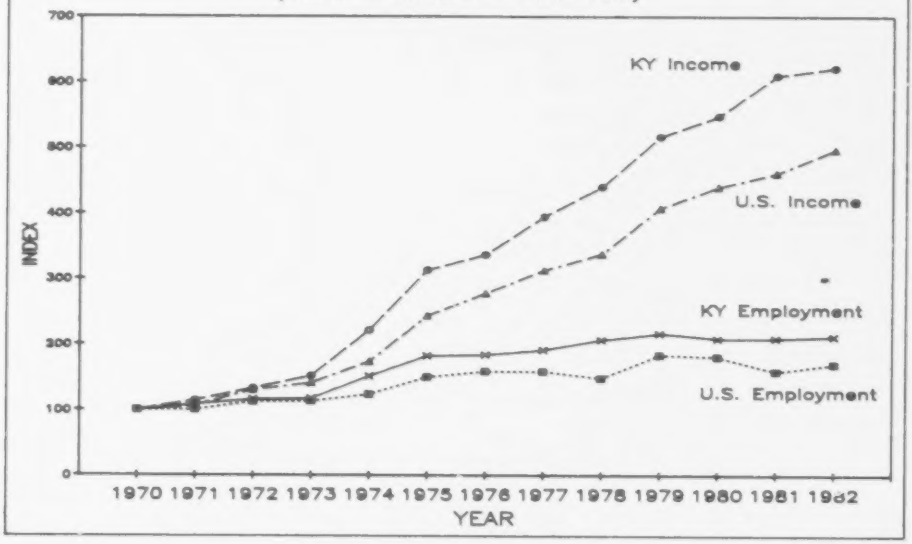


Figure 11—C
Growth in Coal—Related Employment,
and Wage & Salary Income, Ky. and U.S.
(Index numbers: 1970=100)



12. Amounts and Sources of Farm Income

Statistical series showing employment, income, and production are useful measures of levels and changes in the *nonfarm* sector of the economy. But the farm economy differs from the nonfarm economy in many important ways, and different types of economic statistics are needed to describe the farm sector accurately. For example, persons employed and wage and salary income are less useful statistics for agriculture because there is a much greater importance of nonwage workers (farm proprietors and family members) as labor sources. Also, it is difficult to measure net farm income in a manner comparable to that for nonfarm businesses because of this greater reliance on non-paid family farm labor. Income from federal price support programs is also factored into the measurement of farm net income annually.

Total annual income of farm wage earners and farm proprietors is presented in Table 12-A for Kentucky and the nation for the 12-year period 1970-81, with all amounts shown as index numbers (1970 = 100). This measure of total income is essentially the wages of hired farm laborers and the combined net profits and wages of the farm proprietors who both work on the farm and earn a return on their investment. Net farm income, a component of total farm labor and proprietors' income, is proprietors' realized net income less net income of corporate farms and including the total value of inventory change. Also presented in Table 12-A are statistics on several important segments of farm proprietors' income: realized net income (the sum of cash receipts and other income less farm production expenditures); cash receipts (total, and from livestock and crops); and total other income (such as government payments and imputed interest and rent).

Much of the growth shown in Table 12-A resulted from price inflation in the economy. Therefore, a slower increase or actual decrease in annual values suggests that a particular farm income series declined in real terms. In Kentucky, for example, total farm labor and proprietors income declined in 1975 and 1976, and in 1977 it only slightly exceeded the 1974 level. Another decline occurred in 1980, but the increase for 1981 was especially high for this income series. Similar variations are shown for the cash receipts and other income series. Also, the national series for cash receipts, other income, and farm labor and proprietors' total income generally followed patterns similar to those for Kentucky.

In contrast, the Kentucky realized net income series differed from the labor and proprietors' income series in both size and direction of change over the period 1977-81. At the national level, realized net income follows much the same pattern as the labor and proprietors' income series ex-

cept for a substantial change in direction from 1980 to 1981. The national index number for realized net income declined between 1980 and 1981 by much the same degree as the Kentucky series declined. The Kentucky and national series for farm labor and proprietors' income, as plotted in Figure 12, illustrate differences in both their growth and annual variation.

The proportions of total farm cash receipts derived from livestock and from crops are presented in Table 12-B for Kentucky and the nation for the 13-year period 1970-82. Annual amounts received for livestock and crops are expressed as percentages of total cash receipts. Of interest are changes over the years in the percentages of cash receipts from livestock and from crops and how these percentages differ between Kentucky and the nation. In the period 1970-73 and again in 1978, Kentucky cash receipts were larger from livestock than from crops, but this relationship was reversed in the period 1974-77. For the period 1970-79, except for 1973, Kentucky received a smaller percentage of its cash receipts from livestock than did the nation, but this relationship reversed, slightly, in 1980. In 1981, and more dramatically in 1982, Kentucky's percentage of cash receipts from livestock fell below that for the nation. A similar pattern of reduction in livestock as a proportion of total cash receipts occurred in the national statistics over the 13-year period 1970-81, with livestock and crops becoming roughly equal proportions for the nation in 1981 and 1982.

Table 12-A

Farm Income, by Source, Kentucky and United States, 1970-81
(Index Numbers: 1970 = 100)

Type of Farm Income	Farm Income as Percentage of 1970 Amount											
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Kentucky												
Farm Labor and Proprietors' Income	100	104	129	152	179	135	162	184	192	226	187	283
Realized Net Income	100	83	115	142	135	125	143	165	228	193	256	209
Cash Receipts	100	100	116	142	158	154	178	203	246	249	300	301
Livestock	100	102	115	143	112	130	143	172	229	229	267	266
Crops	100	98	119	142	221	188	227	246	270	277	345	350
Other Income	100	92	107	112	122	136	146	164	183	215	231	264
United States												
Farm Labor and Proprietors' Income	100	104	125	206	175	167	142	145	190	221	161	192
Realized Net Income	100	96	126	212	199	156	157	132	189	195	176	139
Cash Receipts	100	104	121	171	179	171	183	186	219	258	272	278
Livestock	100	103	120	155	138	143	153	157	198	231	227	228
Crops	100	106	122	196	244	215	232	232	256	301	343	357
Other Income	100	96	111	105	93	109	117	142	170	174	191	221

Note: Farm labor and proprietors' income is the sum of net farm income (realized net income less net income of corporate farms and including the total value of inventory change); farm wages and perquisites; and farm other labor income. Realized net income is the sum of total cash receipts and other farm income less total farm production expenses. This table highlights only certain segments of the total Farm Labor and Proprietors' Income.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

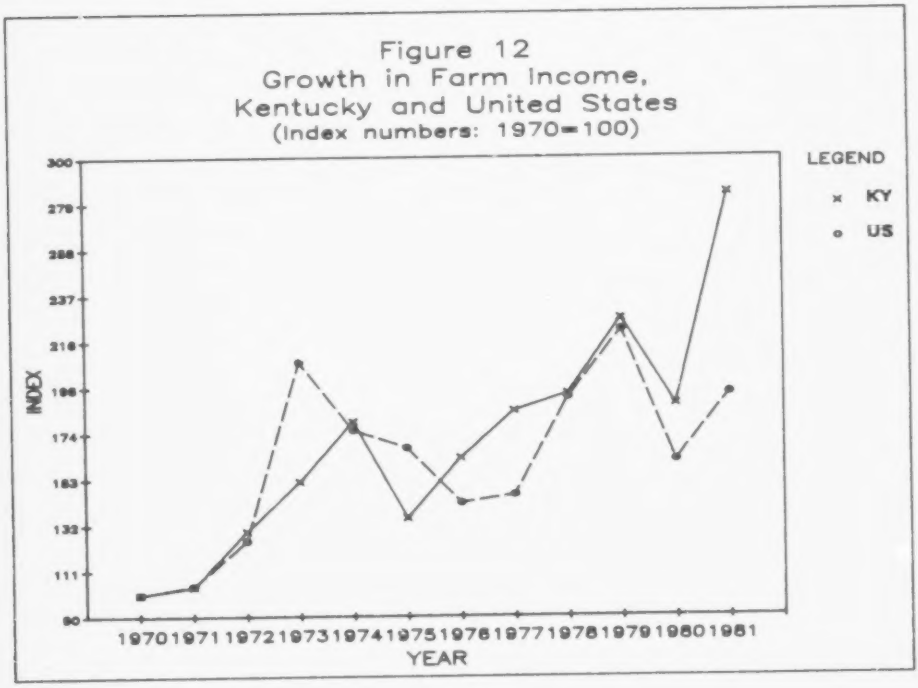
Table 12-B

Source of Farm Cash Receipts, Kentucky and United States, 1970-82

Source	Percentage of Total Farm Cash Receipts												
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Kentucky													
Livestock	56	57	55	56	40	47	44	47	51	50	49	48	44
Crops	44	43	45	44	60	53	56	53	49	50	51	52	56
United States													
Livestock	58	58	58	53	45	49	49	49	52	52	48	49	49
Crops	42	42	42	47	55	51	51	51	48	48	52	51	51

Note: Since 1978, receipts from all horse sales, including stud fees, have been included in livestock cash receipts.

Source: U.S. Department of Agriculture, *Agricultural Statistics*, 1978, and *Economic Indicators of the Farm Sector*, 1982; and Kentucky Crop and Livestock Reporting Service, *Kentucky Agricultural Statistics*, annual; Kentucky data through the Kentucky Economic Information System.



13. Value of Construction Activity

Construction activity fluctuates during a year because of weather and other seasonal influences and over the years because of the business cycle. The product of the construction industry is durable in nature and, as a general rule, durable goods production is unstable because of the postponable nature of durable goods purchases. The construction industry is also strongly influenced by interest rates which fluctuate widely over the business cycle. In recent years, interest rates have been unusually high by historical standards, especially in the case of "real" interest rates (nominal interest rates less the inflation rate) and this has depressed construction activity.

Statistical information for construction activity differs from information available for other industries. Especially scarce are data series that are consistently defined over long time periods for both the state and nation. Some of the available series also differ between origin from federal government agencies and private organizations. Construction activity includes residential and nonresidential buildings; the nonresidential buildings group can include both private and governmental buildings; and governmental construction can also include highways, bridges, and dams.

Three statistical series that reflect most of the construction industry are presented in annual amounts in Table 13 for Kentucky and the United States for the 13-year period 1970-82. All amounts are index numbers (1970 = 100). Two of these series, Series A (income of wage and salary workers in construction) and Series B (value of construction contracts awarded for the total of buildings and other activity), encompass all types of construction activity, while Series C (value of construction contracts awarded for residential and nonresidential buildings) is narrower in that it excludes highways, bridges, and dams. Another important difference between these series is that total value of *contracts awarded*, in a particular year, is not necessarily the same as total value of construction *activity* in that year. Differences result mainly from a contract being awarded in one year but much of the construction activity occurring in later years. In contrast, total income of wage and salary workers in the construction industry reflects the actual amount of construction work in a particular year. For these various reasons, each of the three series shown in Table 13 reflect a different view of the construction industry. Series A and B are similar in coverage (essentially all construction activity) while Series B and C are similar in type of data reported (value of contracts awarded).

Series A and B present similar pictures of economic growth and fluctuation in the Kentucky and national construction industries. Greater fluctuation is evident for Kentucky than the nation, as would be expected because of the great difference in size of the economies. Also, the contracts awarded series (B) fluctuates more than the wage and salary income series (A), as would be expected because contract awards tend to bunch in particular years while the work is spread over several years. Kentucky's peak year in Series A was 1979, with activity falling to slightly above the 1978 level in the three years 1980-82. In contrast, the national wage and salary income series (A) continued to grow until a slight decline occurred in 1982. Comparing Series B and C, which are both based on contracts awarded but differ in breadth of coverage of construction, the Kentucky series peaked in 1978, showed a later peak in 1981, but declined in 1982. The national B and C series differed from the Kentucky series mainly in showing less fluctuation and also a much more favorable performance in 1982. National Series B continued to increase in 1982 and national Series C declined only slightly in 1982. Both Kentucky series (B and C) declined in 1982. Note that Series A was previously reported on Table 4 along with wage and salary income series for seven other major industry groups. Compared with the other seven, the construction industry has been a slow growth industry in recent years in both Kentucky and the nation, and Kentucky's growth rate in construction has been less than the national rate.

Figure 13-A illustrates Series B for Kentucky and the nation, while Figure 13-B illustrates Series C for Kentucky and the nation. The main difference between Series B and C is breadth of coverage, with Series B including highways, bridges, and dams. Wage and salary incomes (Series A) were previously plotted in Figure 4.

Table 13

Measures of Construction Activity, Kentucky and the United States, 1970-82
(Index Numbers: 1970 = 100)

	Wage and Salary Income, Contract Construction		Value of Construction Contracts Awarded: Total Building and Nonbuilding		Value of Construction Contracts Awarded: Residential and Nonresidential Building	
	Series A		Series B		Series C	
Year	Kentucky	United States	Kentucky	United States	Kentucky	United States
1970	100	100	100	100	100	100
1971	110	108	141	117	125	123
1972	120	117	127	133	159	147
1973	131	130	125	145	139	158
1974	131	139	126	137	138	138
1975	131	135	122	136	124	125
1976	149	146	154	161	155	150
1977	167	161	190	205	217	196
1978	215	189	294	234	265	242
1979	240	217	256	247	240	253
1980	224	228	184	217	213	235
1981	220	240	290	220	240	240
1982	220	237	224	226	199	238

Source: F. W. Dodge Corp., Division of McGraw-Hill, Inc.; and U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

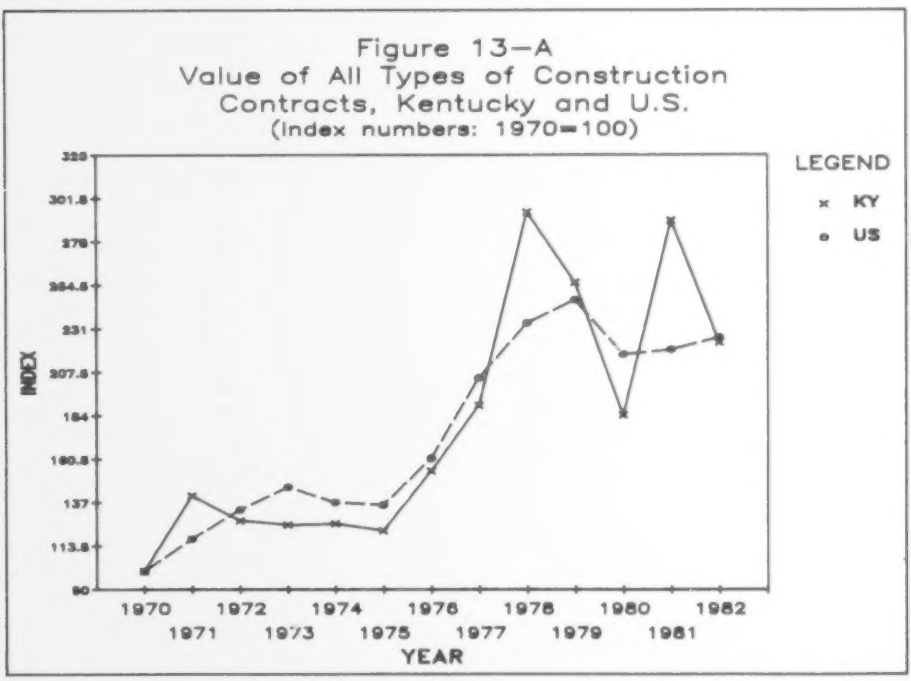


Figure 13–B
Value of Residential and Nonresidential Building Contracts, Kentucky and U.S.
(Index numbers: 1970=100)